

MYP TECHNOLOGY YEAR 1.

"Pimp my Ride" Toy Car Project

[Information] [Materials]

Guiding question:

"How do Designers make something new?"

Context:

The Toy Car project will introduce Technology students to the design process and the Design Cycle. The properties of material such as softwoods and thermoforming plastics will be explored, as will workshop procedures. The product that will be made will be fully researched, designed, created and then tested.

Task:

You have been asked to design and make a new wooden toy car for Toys'R'Us. Their basic car works well, but market research says that it needs to be up-dated. It must be suitable for children from 3 years old and up.

Information:

- Research into exiting products, market research and analysis of results.
- Communication of ideas through sketching and design concepts.

Materials:

- Introduction to softwoods and thermoplastics
- Use of appropriate tools and equipment

Areas of Interaction:

Student Learning Expectations. (SLEs)

ATL

Organization: How the Design Cycle helps me to organizes my work

Communication: How can I communicate my ideas?

Thinking: Innovation.

Reflection: Testing and improving.

HI

How and why products are constantly being improved upon.

OBJECTIVES

1. Use of the Design Cycle.
2. Undertake meaningful and relevant research.
3. Communication through sketching
4. Gain experience using tools & equipment. Manage time & resources
5. Critically evaluate own work.
6. Reflect upon learning.

ASSESSMENT

1. Create a Design Folio following the Design Cycle.
2. Product Analysis and market research
3. Provide several possible solutions and justify final choice.
4. Create solution to appropriate standard.
5. Test & evaluate solution. Justify any changes.
6. Evaluate learning in terms of AOI.

Investigate

Guiding Questions

Explain in your own words the **task** that you have been asked to solve.

Write 2 - 3 **guiding questions** that might help you with your research. (what do you need to know?)

What are the **AREAS OF INTERACTION** that have been highlighted by your teacher for this design task? How might they been interpreted to help you understand the problem and help you with your research?



Describe the **Design Cycle** and how we use it to help us in Technology

Write your **Design Brief**.

Investigate

Product Analysis

Looking at similar products is a useful form of research. You can learn quickly about the different methods and techniques used to solve a problem similar to your own. This leaves you in a good starting point to think about your own solution.

Find pictures of **wooden toys** and annotate thoroughly. Use the internet, magazines, books or photograph real items.

Annotation guide for Product Analysis

Describe in the materials used. (*HI*)

What features do you like/dislike about the design? (*ATL*)

What design ideas could you possibly use?

Indicate how it might be constructed? (*HI*)

A good survey helps guide your project, especially when designing.

We need a survey or interviews to assess our market's likes and dislikes.

Write a questionnaire that can be used to assess what your chosen market would like from a new product.

Can you identify the groups of people you should talk to?

What kind of questions should you ask them?

Make your questions multiple choice so we can fill in the results in tally form.

Question	Options	Results

CONCLUSION:

What did you learn from your survey?

Investigate

Tools & Equipment

<u>TOOL</u>	<u>PICTURE</u>	<u>USES</u>	<u>TIPS & TRICKS</u>
FILE			
TIMBER SAW			
COPING SAW			
PILLAR DRILL			
LINE BENDER			
SANDING MACHINE			

<u>MATERIAL</u>	<u>PICTURE</u>	<u>PROPERTIES</u>	<u>USES</u> (How could you use it with this project too)
SOFTWOOD			
ACRYLIC			
PLYWOOD			
ABS PLASTIC			
PVA GLUE			

A Design Specification is a checklist of key points and/or constraints that designs must take account of. This is a list of "must haves" for your project.

All your designs need to be checked against this list.....

Use (What's it for):

Market (Who it is for):

Size (Max and Min):

Materials Available:

Components Required:

Time to make:

Aesthetics (The looks):

Ergonomics (Design for use):

Safety:

Other:

Design

Designs for Car

Produce 3 - 5 designs for your Car. Show clearly the dimensions, cool design features and how you will make it. Evaluate each design against the Design Specification.

Annotation guide for Game Design - Notes around Designs

Indicate the design improvements from the original car. *(HI)*

What features do you like/dislike about the design? *(ATL)*

How does each design meet the Design Specification?

Indicate materials, colours, size and specific tools if needed. *(HI)*

Plan

Production Plan

A production plan is a **step by step** guide of how you are going to make your product/solution. In the Investigate phase of the Design Cycle, you should have researched into the materials and construction processes that could be used.

Step	Materials/Tools needed	Process (What I will do)	Time

Create

Process Journal

During the Create phase of the Design Cycle, you must keep a Process Journal. You should record what you have done each lesson and what you will do the next lesson.

Take **photographs** of your project as it is being built to show each step of production. Indicate problems you have encountered and how you overcame them.

Justify any changes to your design.

DATE	What was accomplished this lesson, tools used, problems encountered and how they were overcome.	What I hope to achieve next lesson, what tools I will need, what materials I will need, any changes to my design.

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Evaluation

Final Product

Evaluation is perhaps the most important part of the Design Cycle. You need to evaluate the **final product**, evaluate each stage of the **Design Cycle** and evaluate against the **Areas of Interaction**.

Evaluation of: FINAL PRODUCT	Have you solved the problem? How did you test the product? How could you improve your design?
Design Improvement Sketch	Design Improvement Sketch

Evaluation of **Design Cycle:**
INVESTIGATION

Have you explained the problem clearly in the Design Brief and Specification?
Have you used several different sources/methods of gathering information? Was it all useful?
Have you described how to effectively test your solution?

Self Assessment /6

Evaluation of **Design Cycle:**
DESIGN

Did you produce several feasible designs?
Can you justify your chosen final design?
Are your designs fully annotated?
Are they of good quality?

Self Assessment /6

Evaluation of **Design Cycle:**
PLAN

Did you produce a detailed and logical plan?
Did you follow your plan exactly? Why not?
Did you evaluate your plan?
How could you improve your plan?

Self Assessment /6

Evaluation of **Design Cycle:**
CREATE

Did you use the tools and equipment effectively?
What problems to you have? How did you solve them?
Did you change your design? Can you justify your changes?
Did you create a solution of appropriate quality?

Self Assessment /6

Evaluation

Areas of Interaction

Evaluation of:
**ATTITUDES IN
TECHNOLOGY**

Did you work to the best of your ability?
Were you self motivated?
Could you solve problems and work independently?
Did you always work in a safe and appropriate manner?

Self Assessment /6

Learner Profile:

What Learner Profile attributes have you demonstrated during this project?
Can you give examples?

Evaluation

Areas of Interaction

Evaluation of **Areas of Interaction:**
HUMAN INGENUITY

Human Ingenuity refers to man the maker.
What are the possible effects of your solution on your chosen market? Effects on society as a whole?

Evaluation of **Areas of Interaction:**
APPROACHES TO LEARNING

What ATL skills did you employ during this project?
Were they effective/relevant? How could you improve?
E.g.: Study Skills, Thinking Skills, Researching, Communicating...

	Level 5 - 6	Level 3 - 4	Level 1 - 2
INVESTIGATE	<p>I have clearly re-written the Design Brief in my own words with mention of the intended market.</p> <p>I have a complete a thorough analysis of tools & materials highlighting features and justifying my choice.</p> <p>I completed a detailed Product Analysis, examining several skill games and have demonstrated an excellent understanding of ergonomics.</p> <p>I have written a Specification with clear and relevant points that demonstrate a excellent understanding of the problem.</p>	<p>I have clearly re-written the Design Brief in my own words.</p> <p>I have written relevant guiding questions.</p> <p>I have examined some materials explaining their properties and a few tools.</p> <p>I completed a Product Analysis, examining some different games.</p> <p>I have written a Specification with clear and relevant points that demonstrate a good understanding of the problem.</p>	<p>I have written a Design brief.</p> <p>I have written a guiding question.</p> <p>I have attempted some analysis materials or tools</p> <p>I completed little or no Product Analysis</p> <p>I have written a Specification.</p>
DESIGN	<p>I completed 4-5 designs of good quality with annotation, each evaluated against the specification.</p> <p>I justified the chosen design and critically evaluated all designs against the design specification.</p>	<p>I completed 3-4 designs of good quality with annotation and justified my chosen one.</p> <p>I somewhat evaluated my designs against the design specification.</p>	<p>I completed less than 3 designs and with some attempt to justify against the specification.</p>
PLAN	<p>I produced a plan containing a number of detailed, logical steps that could be followed by others.</p> <p>I produced a detailed Production plan indicating time, equipment, and resources needed.</p> <p>I critically evaluated and justified any modifications to my plan.</p>	<p>I produced a plan containing a number of logical steps that include tools and time.</p> <p>I made some attempt to evaluate the plan.</p>	<p>I produced a plan with some details of steps and/or resources required.</p>
CREATE	<p>I competently used appropriate construction techniques.</p> <p>I followed a plan and justified any modifications.</p> <p>I used photographs to highlight the making of the pen in my detailed Process Journal.</p> <p>I created a car of appropriate quality with innovation. (New workshop skills and original design)</p>	<p>I used tools and equipment as shown.</p> <p>I kept a regular process journal with photographs and explanations.</p> <p>I created a car of satisfactory quality.</p>	<p>I considered a plan and created a toy car.</p> <p>I followed the teacher's instructions.</p> <p>I occasionally kept a process journal.</p>
EVALUATE	<p>I gauged the success of my car and evaluated objectively based on the results of testing and views of intended users.</p> <p>I produced an evaluation at each stage of design cycle, suggesting improvements.</p> <p>I insightfully evaluated the AOI and Learner Profile clearly demonstrated an understanding of their relevance.</p>	<p>I evaluated my toy car and own performance, suggesting what could be improved.</p> <p>I tested my car on the target audience and evaluated against the design specification.</p> <p>I evaluated my use of the design cycle with insight.</p> <p>I evaluated my use of the AOI and Learner Profile.</p>	<p>I evaluated my game or my own performance.</p> <p>I made some attempt to test my toy car.</p>
ATTITUDE	<p>My conduct in the workshop was exemplary at all times</p> <p>I worked consistently with a positive attitude and to the best of my ability.</p> <p>I can highlight many Learner Profile attributes I have exhibited during this project.</p>	<p>I always conducted myself in a responsible & safe way in the workshop</p> <p>I generally worked with a positive attitude and to the best of my ability.</p> <p>I can highlight several Learner Profile attributes I have exhibited during this project.</p>	<p>I always conducted myself in a responsible & safe way in the workshop</p> <p>I worked with a reasonably attitude and could improve my effort.</p> <p>I can highlight some Learner Profile attributes I have exhibited during this project.</p>

Photographs of Final Product